NASA STTR 2011 Phase I Solicitation

T1.02 Commodity Based Technologies

Lead Center: ARC

This subtopic seeks out-of-the-box, innovative, broad-based approaches to address space mission requirements.

Desired proposals would enable the commoditization of space mission requirements by utilizing existing commercial technology goods and services to reduce schedule and costs of implementation.

Examples:

Smart-phones today are able to perform many of the basic capabilities of the spacecraft, having a high speed processor with large memory capacity, a set of sensors such as an accelerometer, rate gyroscopes, magnetometer, global positioning system (GPS).

Another example would be using multiple COTS (commercial off the shelf) digital cameras with multiple color filter settings, and then combining the image as a hyper-spectral imager at low cost. Other consumer goods that may have high utility for small spacecraft include but are not limited to:

- PDA-based smart phones.
- High resolution digital cameras.
- Consumer robotics.
- Lego-like assemblies.
- Medical grade surgical adhesives.
- Pressure sensitive paint.

- In-situ bioanalytical diagnostics.
- Mining technologies.
- Biohybrid devices.
- Diagnostics.
- X10-based domonics.

Proposers are asked to build a conceptual system/spacecraft design/operational scenario that details the architecture, components and specifications. Supporting analysis including cost and feasibility should be included. Phase II contract efforts should be used to prototype the system(s) detailed in Phase I.

Proposals should focus on the following areas of research:

- Transformational Small Spacecraft, Subsystems, and Mission Architectures.
- Biological Technologies for Life Beyond Low Earth Orbit.
- GREEN Technologies (Technologies for Sustainability).
- Emerging Aeronautics Systems and Technologies.
- Autonomous Laboratories on Planetary Surfaces.
- Hybrid Systems Modeling and Analysis.
- Advanced Information, Robotics, and Autonomous Systems.

Proposals that focus on the above areas of research, and contribute to the NASA Space Technology Grand Challenges will have higher priority.

Reference Documents:

- Grand Challenges
    - http://www.nasa.gov/pdf/503466main_space_tech_grand_challenges_12_02_10.pdf
- Roadmaps
    - http://www.nasa.gov/offices/oct/home/roadmaps/index.html